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DATE: March 22, 2005

TO: Examiner Chat C. Do
TC Art Unit: 2124

Fax No.: (703) 872 9306

FROM: Richard E. Gamache

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(including this page): 7

Our File: ADI-005XX

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Sent by: Paula Derby

Application No. 09/630,258

Filed Date: August 1, 2000

Confirmation No.: 7200

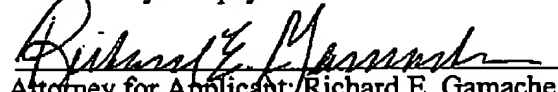
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PLEASE DELIVER DIRECTLY TO:
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FOR ENTRY

Enclosed for filing please find a Statement of the substance of the interview dated
March 22, 2005.

The Commissioner is hereby authorized to Charge Deposit Account No. 23-0804 for any additional
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Attorney for Applicant: Richard E. Gamache
Registration No. 39,196

REG/pjd/318934

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Application No.: 09/630,258
 Filed: August 1, 2000
 TC Art Unit: 2124
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Mail Stop Amendment
COMMISSIONER FOR PATENTS
 P.O. Box 1450
 Alexandria, VA 22313-1450

Date: March 22, 2005

Attorney
 Docket No.: ADI-005XX

Sir:

In re application of: Marc Hoffman et al.

Entitled: A METHOD FOR EFFICIENTLY COMPUTING A FAST FOURIER TRANSFORM

Transmitted herewith is a Statement of the substance of the interview in the above-identified application. The following checked items are applicable:

- ☐ This is a Request for Continued Examination under §1.114; a check in the amount of _____ is enclosed per §1.17(e).
☐ Enter the unentered amendment previously filed on _____ per §1.116.
- ☐ A Petition for Extension of Time for ___ month(s) is hereby made under §1.136(a); a check in the amount of \$ _____ is enclosed for the cost of such extension per §1.17.
- ☒ In the event a Petition for Extension of Time is required by this paper and not otherwise provided, such Petition is hereby made and authorization is provided herewith to charge Deposit Account No. 23-0804 for the cost of such extension.
- ☐ Other:

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Independent	4 - 4	= 0	x \$200.00 =	0
Total	20 - 20	= 0	x \$ 50.00 =	0
<input type="checkbox"/> Multiple Dependent Claims (1st presentation)			+ \$360.00 =	0
SUBTOTAL ADDITIONAL FEE				0
Small Entity filing, divide by 2. Small Entity status must be asserted.				0
TOTAL ADDITIONAL FEE				0

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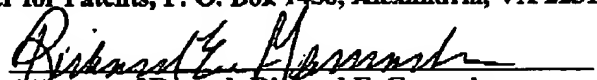
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SUBMIT IN TRIPLICATE

REG/pjd/318932


 Attorney of Record: Richard E. Gamache
 Registration No.: 39,196

PATENT

Rev 06/04

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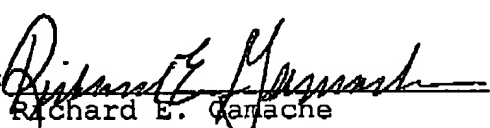
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MAR 22 2005

In re application : Marc Hoffman, et al.
Application No. : 09/630,258
Filed : August 1, 2000
Confirmation No. : 7200
For : A METHOD FOR EFFICIENTLY COMPUTING A
FAST FOURIER TRANSFORM
Examiner : Chat C. Do
Attorney's Docket : ADI-005XX

TC Art Unit: 2124

I hereby certify that this correspondence is being sent via
facsimile to Examiner, Chat C. Do, TC Art Unit 2124, Fax No.
(703)872 9306, on 3/22/05.

By: 
Richard E. Gamache
Registration No. 39,196
Attorney for Applicants

STATEMENT OF THE SUBSTANCE OF THE INTERVIEW

Via Facsimile
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

The instant Statement of the Substance of the Interview is
filed in response to the Office Action dated March 11, 2005.

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Application No. 09/630,258

Filed: August 1, 2000

TC Art Unit: 2124

Confirmation No.: 7200

STATEMENT OF THE SUBSTANCE OF THE INTERVIEW

On March 3, 2005, a telephonic interview was held between Examiner Chat C. Do and Applicants' Attorney Richard E. Gamache, in the above-referenced application. During the interview, claim 1 and U.S. Patent No. 5,951,627 to Kiamilev et al. were discussed. The Applicants' Attorney initiated the interview to discuss the Examiner's rejection of claim 1 contained in the official action dated November 17, 2004.

Specifically, claim 1 was rejected under 35 U.S.C. 102(e) as being anticipated by Kiamilev et al. During the interview, however, the Applicants' Attorney pointed out that claim 1 distinguishes over the Kiamilev reference because Kiamilev et al. do not disclose a method of computing an FFT in a plurality of computation stages, as recited in claim 1, including the step of storing R output butterfly data values in sequential memory locations of a memory, wherein the memory store operation has a unity stride, thereby allowing R output butterfly data values to be read from contiguous memory locations each time the R output butterfly data values are read from said memory, and wherein steps (a)-(g) of claim 1 are performed in each one of the plurality of computation stages. In other words, each one of the computation

Application No. 09/630,258
Filed: August 1, 2000
TC Art Unit: 2124
Confirmation No.: 7200

stages recited in claim 1 performs the same processing steps (a)-(g), i.e., the computation stages are substantially identical.

In contrast, the Kiamilev reference discloses a 16-point FFT processor array including stages 1-4, in which each stage provides 16 output butterfly data values (see Fig. 2 of Kiamilev et al.). Although stage 4 is depicted as providing its 16 output butterfly data values to sequential locations 0-15, the Applicants' Attorney pointed out that the stages 1-3 do not provide their 16 butterfly data value outputs to sequential locations within the FFT processor array, and therefore memory store operations at the output of each stage 1-3 of the Kiamilev array would not have a unity stride, as recited in claim 1.

The Applicants' Attorney further pointed out that to assure that the outputs of the butterfly processors in stage 4 are provided to sequential locations in the Kiamilev FFT processor array, a re-shuffling of its outputs $x(0)$ - $x(15)$ is required, as depicted in Fig. 2 of Kiamilev et al. Because this re-shuffling of outputs only occurs at the output of stage 4 and does not occur at the outputs of stages 1-3 of the Kiamilev array, the same processing steps are not being performed in each one of the stages 1-4, as recited in claim 1. The Examiner indicated his agreement with the assertion that the computation stages of the Kiamilev

-3-

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Application No. 09/630,258
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TC Art Unit: 2124
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array do not perform the same processing steps, as required by the method recited in claim 1.

In addition, the Applicants' attorney pointed out that the Kiamilev reference discloses a multi-stage FFT calculation system employing multiple virtual memory banks 0-3, in which each bank 0-3 is subdivided into four physical blocks of storage (see Fig. 6 of Kiamilev et al.). Because the output butterfly data values of each stage of the Kiamilev system are not provided to sequential locations of a memory, the output data values are not read from contiguous memory locations each time the outputs are read from the memory, as recited in claim 1. Instead, output data values are first read from the same address of banks 0 and 2. Next, banks 1 and 3 are accessed at the same address. The accessing of the memory banks 0-3 then alternates between the even-numbered and odd-numbered banks to assure that each butterfly processor gets data inputs that are $N/2$ points apart from each other (see column 6, lines 15-21, of Kiamilev et al.).

In contrast, the method of claim 1 recites the step of storing R output butterfly data values in sequential memory locations of a memory such that the memory store operation has a unity stride, thereby allowing the R output butterfly data values to be read from contiguous memory locations of the memory each

-4-

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Application No. 09/630,258
Filed: August 1, 2000
TC Art Unit: 2124
Confirmation No.: 7200


time the R output butterfly data values are read from the memory.
The Examiner indicated that further consideration would be required to determine whether or not he agrees with the assertion that in the Kiamilev system, the output data values are not read from contiguous memory locations each time the outputs are read from the memory, unlike the method of claim 1.

The Examiner is encouraged to telephone the undersigned attorney to discuss any matter that would expedite allowance of the present application.

Respectfully submitted,

MARC HOFFMAN, ET AL.

By


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